REMARKS

In response to the Office Action mailed on September 20, 2002, Applicants respectfully request reconsideration. Claims 1-32 are now pending in this Application. Claims 1, 14, 20, 22, 23, 27, 28, 29, and 32 are independent claims and the remaining claims are dependent claims. In this Amendment, claims 1, 2, 9, 14, 15, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, and 32 have been amended and claim 33 has been cancelled. A version of the claims containing markings to show the changes made is included in the Appendix attached hereto. The Applicants believe that the claims as presented are in condition for allowance. A notice to this affect is respectfully requested.

The Applicants have amended claims 1, 2, 9, 14, 15, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, and 32 to clarify the nature of the invention. The amendments for claims 1, 2, 9, 14, 15, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, and 32 include language describing data associated with the session of data communication or data transported through the data communications device as being application data. Support for the amendments can be found in the Applicants' specification on page 21, line 19, for example. The amendments for claims 1, 22, 24, and 29 include language describing bandwidth allocation adjustment information located within a bandwidth reservation request. Support for the amendments can be found in the Applicants' specification on page 18, line 16, for example. Claim 32, furthermore, incorporates the content of cancelled claim 33. The amendments do not add new matter to the Application.

Furthermore, the Applicants have amended claim 18 and the specification, voluntarily, to correct for typographical errors. The amendments do not add new matter to the Application.

Claims 1-33 were rejected under 35 U.S.C. §102(e) as being anticipated by Elwalid, et al., U.S. Patent No. 6,353,616 B1 (hereinafter Elwalid). The Applicants respectfully disagree with this contention and assert that the present claimed invention is not anticipated by any disclosure in Elwalid.

Elwalid relates to a system for scheduling and adaptively controlling processing of Reservation Setup Protocol (RSVP) control messages by a router. During RSVP communications, senders and receivers transmit control messages (e.g., signaling

message requests), such as PATH messages, RESV messages, UPDATE messages, and TEAR-DOWN messages.[1] Elwalid describes a packet network employing an RSVP system having routers that schedule the processing of RSVP control message based on link utilization.[2] The routers monitor link utilization, for example, as traffic experienced by the router, such as the average **number** of PATH, RESV, UPDATE, and TEAR-DOWN messages received by the router.

Elwalid also describes the routers as having a processing section that employs adaptive weight assignment with respect to the control messages to allocate processing capacity, of the processing section, for the control messages.[3] In other words, the system in Elwalid dynamically schedules processing of RSVP control messages based on the frequency of their occurrence. To do so, Elwalid establishes different classes for the control messages, received by a router, during RSVP communications. For example, Elwalid assigns PATH & RESV messages to a first message class, UPDATE messages to a second message class, and TEAR-DOWN messages to a third message class.[4] The router allocates weights to each message class, based upon link utilization for each message class.[5] Therefore, assume, based upon link utilization monitoring, the router detects the PATH & RESV message class comprises the greatest amount of traffic received by the router. In such a case, the router allocates a greater weight to the PATH & RESV message class, compared to the UPDATE message class or TEAR-DOWN message class. The weight of the message class then corresponds to a portion of the router processing section's processing capacity[6] or the percent of processing time the processor section provides to a particular message class. The PATH & RESV message class, therefore, receives a greater amount of processing time than do the UPDATE message class or TEAR-DOWN message class.

Generally then, Elwalid relates to router processing of RSVP control messages (as opposed to application data messages) according to weights assigned to the various

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1 Elwalid, col. 6, l. 27-28.
2 Elwalid, Abstract.
3 Elwalid, Abstract.
4 Elwalid, col. 6, l. 64-66.
5 Elwalid, Abstract.
6 Elwalid, Abstract.

control message classes, where the assigned weights for each control message class are based upon the link utilization for each control message class.

By contrast, present Application describes a data communications device capable of dynamically adjusting reserved bandwidth for application data messages while maintaining a session of data communication. The device includes an input for receiving data, including bandwidth reservation requests, and a data storage mechanism having data storage locations. The device also includes a bandwidth reservation processor, coupled to the input port, that accepts a first bandwidth reservation request indicating a first amount of bandwidth to reserve for the session of data communication in the data communications device. The bandwidth reservation processor then establishes a first bandwidth reservation, associated with a session of data communication, in data storage locations associated with the data storage mechanism. A data scheduler, coupled to the input port and to the data storage mechanism, then receives **application data** associated with the session of data communication and deposits the application data associated with the session of data communication into the data storage locations associated with the first bandwidth reservation. In such an arrangement, data transport is separated from bandwidth reservation and allocation.

The bandwidth reservation processor can then receive a bandwidth reservation request containing bandwidth allocation adjustment information from the input port during the session of data communication. The bandwidth reservation processor dynamically adjusts the first bandwidth reservation in the data storage locations to produce a second bandwidth reservation for the session of data communication, in accordance with the bandwidth allocation adjustment information. The bandwidth reservation processor performs such an operation while the data scheduler continually receives and deposits application data associated with the session of data communication into the data storage locations associated with the session of data communication. In other words, the session of data communication continues during the bandwidth adjustment processing.

For example, to reserve bandwidth for one or more sessions of data communication, the data communications device receives bandwidth reservation requests

and path messages which are directed to the bandwidth request handler. If accepted, the bandwidth request handler provides one or more data structures, called sender state data, to a bandwidth labeler. The bandwidth labeler accesses the data storage mechanism to establish the requested bandwidth reservation as specified in the sender state data.

During a session of data communication, the input port receives packets of application data (e.g., data transferred in a session of data communication) and directs the packets to the data scheduler. The data scheduler schedules or deposits the data packets into data storage locations, within the data storage mechanism, that have corresponding labels provided by the bandwidth labeler. The data storage mechanism then operates to transport the application data packets back onto a network from an appropriate output port, in order to send the application data further towards its eventual destination.

If a client application executing on a recipient host (e.g., receiver) senses that more network bandwidth is required to receive a particular data stream, the recipient host uses RSVP to make a bandwidth reservation request, containing bandwidth allocation adjustment information, to each network device associated with the session of data communication. The bandwidth reservation processor in each network device along the path of the data stream receives the RSVP bandwidth allocation adjustment information. Assuming bandwidth resources (i.e., an extra 20 Kbps) are available to meet the needs of the additional request (e.g. RSVP admission control), and that permission is granted for the requesting host or client application to increase bandwidth to the requested level, the bandwidth reservation processor in each device dynamically adjusts the original bandwidth reservation (e.g., original reservation of 100 Kbps) to produce a new bandwidth reservation (e.g., 120 Kbps) for the data stream while continually maintaining (i.e., transporting) the data stream. Separation of bandwidth reservation, adjustment, and control from the transportation of data through a data communications device allows a session of data communication to be uninterrupted during adjustments to bandwidth for that session.

Rejection under 35 U.S.C. §102(e)

Claims 1-33 were rejected under 35 U.S.C. §102(e) as being anticipated by Elwalid. However, to anticipate a claim, the cited reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."[7] "The identical invention must be shown in as complete detail as is contained in the ... claim."[8]

The Office Action, however, has not established that Elwalid anticipates claims 1-32 of the present Application because Elwalid does not teach every element of the Applicants' claims.

Independent claims 1, and 29, as amended, relate to a data communications device establishing a first bandwidth reservation associated with a session of data communication and transporting application data associated with the session of data communication utilizing data storage locations associated with the first bandwidth reservation. The data communications device receives bandwidth allocation adjustment information, within a bandwidth reservation request, during the session of data communication, and dynamically adjusts the first bandwidth reservation to produce a second bandwidth reservation for the application data of the session of data communication in accordance with the bandwidth allocation adjustment information, within the bandwidth reservation request, while continually maintaining the session of data communication.

Elwalid does not anticipate the Applicants' claims 1 and 29 because Elwalid does not teach, disclose or suggest dynamically adjusting a first bandwidth reservation to produce a second bandwidth reservation for the session of data communication in accordance with the bandwidth allocation adjustment information, within the bandwidth reservation request.

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7 *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

8 *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Office Action cites col. 11, lines 15-30 of Elwalid as anticipating claims 1 and 29. The cited section of Elwalid describes router processing of UPDATE messages. During RSVP communications, senders and receivers transmit PATH messages and RESV messages that each have respective timeout values. The routers within the transmission path use the timeout values to set timers associated with each receiving router. When the timer expires, the router deletes state information relating to the senders and receivers, thereby limiting resource blocking by the receiver in case the receiver does not send a TEAR-DOWN messages. Therefore, the senders and receivers transmit UPDATE messages to the routers along the communication path to periodically update state information in the network and maintain connections between the senders and receivers.

Elwalid, however, does not teach, suggest or disclose the UPDATE message acting as a bandwidth reservation request having bandwidth allocation update message for a session of data communication, as described by the Applicants. Based upon the description in Elwalid, the UPDATE message updates state information related to transmitters and receivers in a network and do not relate to bandwidth requests. The Applicants are unclear how the transmission of an UPDATE message during an RSVP session relates to transmission of a bandwidth reservation request having bandwidth allocation update message. The Applicants respectfully request further clarification.

Elwalid, furthermore, does not anticipate the Applicants' claims 1 and 29 because Elwalid does not teach, disclose, or suggest receiving bandwidth allocation adjustment information within a bandwidth reservation request and then using the bandwidth allocation adjustment information to dynamically adjust bandwidth.

As described above, Elwalid establishes different classes for the control messages received by a router in RSVP communications. The router in Elwalid allocates weights to each message class, based upon link utilization (e.g., the average number of PATH, RESV, UPDATE, and TEAR-DOWN messages received by the router for each message class).[9] The weight of the message class then corresponds to a portion of the router

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[9] Elwalid, Abstract.

processing section's processing capacity[10] or the percent of processing time the processor section provides to a particular message class. Elwalid, therefore, relates to scheduling the processing of messages during RSVP communications based upon a **number** of control messages received for each class of messages. Elwalid, however, does not teach of the router acting to schedule the data flows (e.g., the application data content of the application data messages), as claimed by the Applicants.

In claims 1 and 29, as amended, the Applicants describe a data communications device receiving bandwidth allocation adjustment information**, within a bandwidth reservation request,** during the session of data communication. The data communications device dynamically adjusts the first bandwidth reservation to produce a second bandwidth reservation for the session of data communication in accordance with the bandwidth allocation adjustment information, **within the bandwidth reservation request**, while continually maintaining the session of data communication.

In claims 1 and 29, the bandwidth reservation request is a separate entity with respect to the bandwidth allocation adjustment information in that the bandwidth reservation request transmits or carries the bandwidth allocation adjustment information. The bandwidth reservation request relates to a control message used during RSVP communications. Contrary to the teaching in Elwalid, the Applicants do not describe the data communications device as scheduling processing of the bandwidth reservation request (e.g., the control message) but rather for adjusting bandwidth for handling application data. The Applicants teach of adjusting the bandwidth reservation based upon the content of the control message (e.g., based upon bandwidth allocation adjustment information within the bandwidth reservation request).

Because Elwalid does not teach all of the elements of the Applicants' independent claims 1 and 29, claims 1 and 29 should be allowed to issue. Furthermore, dependent claims 2-13, that depend upon claim 1, and dependent claims 30-31, that depend upon claim 29, should also be allowed to issue as depending upon allowable independent

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[10] Elwalid, Abstract.

claims (i.e., for at least the reasons presented). Reconsideration of the rejection is respectfully requested.

The Office Action also cites col. 11, lines 15-30 of Elwalid as anticipating independent claim 32. Claim 32 relates to a computer readable medium encoded with a data structure, the data structure storing bandwidth allocation information. Elwalid, however, does not teach, suggest or disclose the UPDATE message acting as a bandwidth reservation request or as storing bandwidth allocation information.

Furthermore, with respect to independent claim 32, the Applicants have amended the claim to include the content of cancelled claim 33 that relates to reserving data storage locations for the application data associated with the at least one session of data communication. As described above, in the present application, during a session of data communication, the input port 505 receives packets of application data 203 (e.g., **data transferred in a session of data communication**) and directs the packets to the data scheduler 320. The data scheduler 320 schedules or deposits the data packets 203 into data storage locations, within the data storage mechanism 340, that have corresponding labels provided by the bandwidth labeler 550. The data storage mechanism 340 then operates to transport the application data packets 203 back onto a network 200 from an appropriate output port 506, in order to send the application data 203 further towards its eventual destination.

Elwalid, as described, relates to scheduling the processing of **control messages** for RSVP communications. Elwalid does not teach disclose or suggest the scheduling of **application data**. Because Elwalid does not teach all of the elements of the Applicants' independent claim 32, claim 32 should be allowed to issue. Reconsideration of the rejection is respectfully requested.

Independent claim 23 relates to a data communications device capable of dynamically adjusting reserved bandwidth while maintaining a session of data communication. The data communication device includes an input for receiving application data including bandwidth reservation requests and a data scheduler coupled to an input port and coupled to a data storage mechanism. The data scheduler receives application data associated with the session of data communication and deposits the

application data associated with the session of data communication into the data storage locations associated with a first bandwidth reservation.

Elwalid does not anticipate the Applicants' claim 23 because Elwalid does not teach, disclose, or suggest scheduling application data associated with the session of data communication. Elwalid describes a router having a scheduler and a packet classifier. The packet classifier, for example, is employed for processing control or other system signaling type messages.[11] The packet classifier monitors each packet of the input queue of the router and classifies the packets, indicating control messages, as PATH, RESV, UPDATE and TEAR-DOWN messages, for example.[12] The packet classifier notifies the scheduler 206 of the presence of control messages. The scheduler, in turn, allocates portions of the processing capacity of the processing section of the router, based upon the weights assigned to the control messages.

Elwalid relates to scheduling of router processing of **control messages**, such scheduling based upon weights assigned to the various control message classes processing. Elwalid does not relate to scheduling of **application data** or data transferred in a session of data communication between a sender and a receiver, as claimed by the Applicants.

Because Elwalid does not teach all of the elements of the Applicants' independent claim 23, claim 23 should be allowed to issue. Furthermore, dependent claims 24-26, that depend upon claim 23, should also be allowed to issue as depending upon an allowable independent claim (i.e., for at least the reasons presented). Reconsideration of the rejection is respectfully requested.

Independent claims 14 and 27 relate to a method and a system, respectively, for dynamically reserving bandwidth in a data communications device. Claims 14 and 27 describe accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for a session of data communication in the data communications device and labeling, with an identity of the session of data communication, a percentage

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[11] Elwalid, col. 4, l. 58-60.

[12] Elwalid, col. 4, l. 62 - col. 5, l. 5.

of available data storage locations used to store application data transported through the data communications device to establish a first bandwidth reservation.

Elwalid relates to scheduling of router processing of **control messages**, such scheduling based upon weights assigned to the various control message classes processing. Elwalid does not relate to storing **application data** or data transferred in a session of data communication between a sender and a receiver, as claimed by the Applicants.

Because Elwalid does not teach all of the elements of the Applicants' independent claims 14 and 27, claims 14 and 27 should be allowed to issue. Furthermore, dependent claims 15-19, that depend upon claim 14, should also be allowed to issue as depending upon an allowable independent claim (i.e., for at least the reasons presented). Reconsideration of the rejection is respectfully requested.

Independent claim 28 relates to a data communications device having a bandwidth reservation processor processing requests to reserve bandwidth for a session of data communications and labeling a percentage of available data storage locations in the data communications device with a session identifier. The data communications device further includes a data transporter concurrently processing and transporting application data through a data communications device using the available data storage locations to store application data as it is processed, the data transporter depositing only application data having a corresponding identifier equivalent to the session identifier of the storage locations into the data storage locations labeled with the session identifier.

As described above, Elwalid relates to scheduling of router processing of **control messages**, such scheduling based upon weights assigned to the various control message classes processing. Elwalid does not relate to storing **application data** or data transferred in a session of data communication between a sender and a receiver, as claimed by the Applicants.

Because Elwalid does not teach all of the elements of the Applicants' independent claim 28, claim 28 should be allowed to issue. Reconsideration of the rejection is respectfully requested.

Independent claim 20 relates to a method for separately handling bandwidth reservation processing in a data communications device from data transport processing. Independent claim 22 relates to a method for storing bandwidth reservation information. With respect to independent claims 20 and 22, the Office Action cites col. 12, lines 10-20 of Elwalid and states: "Elwalid discloses the step of dynamically adjusting the first bandwidth reservation to produce a second bandwidth reservation." The Applicants, however, are unclear regarding the basis of the rejection because neither claim 20 or 22 relate to "dynamically adjusting the first bandwidth reservation to produce a second bandwidth reservation." Clarification is respectfully requested.

As amended, however, claims 20 and 22 include language relating to the transport or storing of application data with respect to a data communications device. As described above, Elwalid relates to scheduling of router processing of **control messages**, such scheduling based upon weights assigned to the various control message classes processing. Elwalid does not relate to storing **application data** or data transferred in a session of data communication between a sender and a receiver, as claimed by the Applicants.

Because Elwalid does not teach all of the elements of the Applicants' independent claims 20 and 22, claims 20 and 22 should be allowed to issue. Furthermore, dependent claim 21, that depends upon claim 21, should also be allowed to issue as depending upon an allowable independent claim (i.e., for at least the reasons presented). Reconsideration of the rejection is respectfully requested.

As described above, a Petition for Extension of Time for one month and the appropriate fee are being filed concurrently with this Amendment. If the U.S. Patent and Trademark Office deems an additional fee necessary, this fee may be charged to the account of the undersigned, Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,

Jeffrey J. Duquette, Esq.
Attorney for Applicants
Registration No.: 45,487
CHAPIN & HUANG, L.L.C.
Westborough Office Park
1700 West Park Drive
Westborough, Massachusetts 01581
Telephone: (508) 366-9600
Facsimile: (508) 616-9805

Attorney Docket No.: CIS99-1267

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APPENDIX

Specification Amendments under 37 C.F.R. 1.121(b)(1)(iii)

Replace the paragraph at page 5, line 29 through page 6, line 11 with the following paragraph marked by way of bracketing and underlining to show the changes relative to the previous version of the paragraph:

One reason that current implementations of RSVP do not allow bandwidth adjustments once a communication session is in progress is not due to limitations of the RSVP protocol. Rather, the design of prior art data communications devices that support RSVP, such as show in Fig. 1, impose the limitations. A customized data classifier 104 and scheduler 106 support RSVP bandwidth reservation requests and enforce the bandwidth allocation requirements in prior art data communications devices that support RSVP. The RSVP daemon 101 periodically updates the customized classifier 104 with filterspec information which allows the classifier 104 to properly examine and classify packets of data with the flow identification associated with the packets. If a packet is associated with a flow of data for which bandwidth has been allocated via RSVP, the customized classifier 104, for example, directs this packet to a queue reserved for this flow. Once queued, the customized scheduler 106 typically uses a weighted fair queuing algorithm to dequeue the data from the various queues according to the bandwidth allocation requirements associated with the various flows of data in relation to each queue as defined by flowspec requirements.

Claim Amendments under 37 C.F.R. 1.121(c)(1)(ii)

1. (Amended) A method for dynamically adjusting reserved bandwidth in a data communications device while transporting a session of data communication within the device, the method comprising the steps of:

establishing a first bandwidth reservation associated with a session of data communication in the data communications device;

transporting, through the data communication device, application data associated with the session of data communication utilizing data storage locations associated with the first bandwidth reservation;

receiving bandwidth allocation adjustment information, within a bandwidth reservation request, during the session of data communication; and

dynamically adjusting the first bandwidth reservation to produce a second bandwidth reservation for application data of the session of data communication in accordance with the bandwidth allocation adjustment information within the bandwidth reservation request while continually maintaining the session of data communication.

2. (Amended) The method of claim 1 wherein the step of establishing a first bandwidth reservation includes the steps of:

accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for the session of data communication in the data communications device; and

labeling, with an identity of the session of data communication, a first percentage of available data storage locations used to store application data transported through the data communications device thus establishing the first bandwidth reservation, wherein the first percentage of storage locations labeled is based upon the first amount of bandwidth requested as indicated in the first bandwidth reservation request.

9. (Amended) The method of claim 1 wherein the step of dynamically adjusting the first bandwidth reservation to produce a second bandwidth reservation includes the steps of:

accepting a bandwidth reservation request indicating a specific amount of bandwidth to reserve for the session of data communication;

calculating and storing a percentage of total device bandwidth to allocate to the session of data communication based upon the bandwidth reservation request; and

labeling, with an identity of the session of data communication, a percentage of available data communication device data storage locations used to store application data transported through the data communications device, wherein the percentage labeled is

based upon the calculated percentage of total device bandwidth to allocate to the session of data communication.

14. (Amended) A method for dynamically reserving bandwidth in a data communications device comprising the steps of:

accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for a session of data communication in the data communications device; and

labeling, with an identity of the session of data communication, a percentage of available data storage locations used to store application data transported through the data communications device to establish a first bandwidth reservation, wherein the percentage of storage locations labeled is based upon the first amount of bandwidth requested as indicated in the first bandwidth reservation request.

15. (Amended) The method of claim 14, further comprising the steps of:

accepting a second bandwidth reservation request indicating a second amount of bandwidth to reserve for the session of data communication;

labeling, with an identity of the session of data communication, a second percentage of available data storage locations used to store application data transported through the data communications device thus establishing a second bandwidth reservation which replaces the first bandwidth reservation associated with the session of data communications, wherein the second percentage of storage locations labeled is based upon the second amount of bandwidth requested as indicated in the second bandwidth reservation request; and

wherein the second percentage of storage locations labeled is different than the first percentage of storage locations labeled.

18. (Amended) The method of claim 14 wherein the step of labeling labels the data storage locations with more than one [identify] identity of more than one session of data communication.

19. (Amended) The method of claim 14 wherein the step of labeling labels the data storage locations with preemptable labels that indicate that the storage location can be used for storing data other than application data associated with the session of data communication for which the storage location is labeled.

20. (Amended) A method for separately handling bandwidth reservation processing in a data communications device from data transport processing, the method comprising the steps of:

processing requests to reserve bandwidth for a session of data communications and labeling a percentage of available data storage locations that store application data in the data communications device with a session identifier; and

concurrently processing and transporting application data through [a] the data communications device using the available data storage locations to store the application data as it is processed, and depositing only application data having a corresponding identifier equivalent to the session identifier of the storage locations into the data storage locations labeled with the session identifier.

22. (Amended) A method for storing bandwidth reservation information, the method comprising the steps of:

accepting a bandwidth reservation request containing bandwidth allocation adjustment information indicating an amount of bandwidth to reserve for transport of application data associated with a session of data communication;

calculating a percentage of total device bandwidth to allocate to the session of data communication based upon the bandwidth allocation adjustment information contained within the bandwidth reservation request; and

storing the percentage in a resource allocation table which is independently accessible by a flow labeler.

23. (Amended) A data communications device capable of dynamically adjusting reserved bandwidth while maintaining a session of data communication, the device comprising:

an input for receiving application data including bandwidth reservation requests;

a data storage mechanism including data storage locations;

a bandwidth reservation processor coupled to the input port and accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for the session of data communication in the data communications device, the bandwidth reservation processor establishing a first bandwidth reservation associated with a session of data communication in the data storage locations; and

a data scheduler coupled to the input port and coupled to the data storage mechanism, the data scheduler receiving application data associated with the session of data communication and depositing the application data associated with the session of data communication into the data storage locations associated with the first bandwidth reservation.

24. (Amended) The data communications device of claim 23 wherein the bandwidth reservation processor receives bandwidth allocation adjustment information, within a bandwidth reservation request, from the input port during the session of data communication and dynamically adjusts the first bandwidth reservation in the data storage locations to produce a second bandwidth reservation for the session of data communication in accordance with the bandwidth allocation adjustment information within the bandwidth reservation request while the data scheduler continually receives and deposits application data associated with the session of data communication into the data storage locations associated with the session of data communication.

25. (Amended) The data communications device of claim 23 wherein the bandwidth reservation processor includes:

a bandwidth request handler coupled to the input port to receive the bandwidth reservation request; and

a bandwidth labeler coupled to the bandwidth request handler and coupled to the data storage locations, the bandwidth labeler receiving bandwidth allocation information indicated in the first bandwidth reservation request and labeling, with an identity of the session of data communication, a first available percentage of the data storage locations used to store application data transported through the data communications device thus establishing the first bandwidth reservation.

27. (Amended) A system for reserving bandwidth in a data communications device comprising:

a bandwidth request handler accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for a session of data communication in the data communications device; and

a bandwidth labeler coupled to the bandwidth request handler, the bandwidth labeler labeling, with an identity of the session of data communication, a percentage of available data storage locations used to store application data transported through the data communications device to establish a first bandwidth reservation, wherein the percentage of storage locations labeled is based upon the first amount of bandwidth requested as indicated in the first bandwidth reservation request.

28. (Amended) A data communications device comprising:

a bandwidth reservation processor processing requests to reserve bandwidth for a session of data communications and labeling a percentage of available data storage locations in the data communications device with a session identifier; and

a data transporter concurrently processing and transporting application data through a data communications device using the available data storage locations to store application data as it is processed, the data transporter depositing only application data having a corresponding identifier equivalent to the session identifier of the storage locations into the data storage locations labeled with the session identifier.

29. (Amended) A computer program product having a computer-readable medium including computer program logic encoded thereon for allocating bandwidth in a data communications device, such that the computer program logic, when executed on at least one processing unit with the data communications device, causes the at least one processing unit to perform the steps of:

establishing a first bandwidth reservation associated with a session of data communication in the data communications device;

transporting, through the data communication device, application data associated with the session of data communication utilizing data storage locations associated with the first bandwidth reservation;

receiving bandwidth allocation adjustment information, within a bandwidth reservation request, during the session of data communication; and

dynamically adjusting the first bandwidth reservation to produce a second bandwidth reservation for the session of data communication in accordance with the bandwidth allocation adjustment information within the bandwidth reservation request while continually maintaining the session of data communication.

30. (Amended) The computer program product of claim 29 wherein the computer program logic that executes the step of establishing a first bandwidth reservation further causes the at least one processing unit to perform the steps of:

accepting a first bandwidth reservation request indicating a first amount of bandwidth to reserve for the session of data communication in the data communications device; and

labeling, with an identity of the session of data communication, a first percentage of available data storage locations used to store application data transported through the data communications device thus establishing the first bandwidth reservation, wherein the first percentage of storage locations labeled is based upon the first amount of bandwidth requested as indicated in the first bandwidth reservation request.

32. (Amended) A computer readable medium encoded with a data structure, the data structure storing bandwidth allocation information, the bandwidth allocation information including an identity of at least one session of data communication and a number representing a percentage of data storage locations to associate with the identity of the at least one session of data communication, the number indicating a number of labels to apply to data storage locations so as to reserve the data storage locations for the application data associated with the at least one session of data communication.